RESEARCH ARTICLE

pISSN: 0126-074X | eISSN: 2338-6223
https://doi.org/10.15395/mkb.v57.4004
Majalah Kedokteran Bandung. 2025;57(3):203–211

Majalah Kedokteran Bandung (MKB)

Received: June 26, 2024
Accepted: May 23, 2025
Available online: September 30, 2025

Family Support and Medication Adherence in Patients in Prolanis Program

Zahratul Aini,[1] Hijra Novia Suardi,[2] Fitria Meutia Dewi,[3] Tilaili Ibrahim,[3] Ika Waraztuty,[3] Vera Dewi Mulia[4]

[1]Department of Family Medicine, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia
[2]Department of Pharmacology, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia
[3]Medical Studies Program, Faculty of Medicine, Universitas Syiah Kuala Banda, Aceh, Indonesia
[4]Department of Pathological Anatomy, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia

Abstract

The Chronic Disease Management Program, or *Program Pengelolaan Penyakit Kronis* (Prolanis), is a disease management program designed for individuals with chronic illnesses. It aims to maintain health and improve quality of life. The success of Prolanis depends not only on patient adherence to medication but also on family involvement as the primary source of support. This study aimed to examine the relationship between family support and medication adherence among Prolanis patients at Batoh Public Health Center, Banda Aceh, Indonesia. An observational analytic study with a cross-sectional design was conducted using consecutive sampling of 74 Prolanis participants. Data were collected through guided interviews. Among the participants, 33 individuals (44.5%) exhibited low medication adherence, while 41 individuals (55.5%) demonstrated high adherence. Additionally, 8 participants (10.8%) reported poor family support, whereas 66 participants (89.2%) received good family support. Data analysis using the chi-square test revealed a significant relationship (p=0.009) between family support and medication adherence. Therefore, it can be concluded that family support is significantly associated with medication adherence in Prolanis patients. Families are the main supporters in maintaining the health of their family members, with an important role in encouraging, supporting, and supervising patients' treatment. Good support and constant encouragement and attention can increase patients' confidence, which in turn will affect their adherence to treatment.

Keywords: Chronic disease, family support, medication adherence, prolanis

Introduction

Chronic diseases are a major threat to global population health. In 2010, 67% of deaths worldwide were due to chronic diseases and this increased to 74% in 2019.[1] Improving health outcomes requires not only curative but also promotive and preventive strategies. In 2014, the Indonesian government, through the National Health Insurance Agency (*BPJS Kesehatan*), collaborated with healthcare facilities to establish the Chronic Disease Management Program (*Program Pengelolaan Penyakit Kronis*; Prolanis).

Prolanis a program aimed at maintaining the health withchronic disease, particularly Hypertension & Type 2 Diabetes Mellitus. The goal is to improve their quality of life through the provision of healthcare services and an integrated approach involving participants, healthcare facilities, and BPJS Kesehatan. The monthly activities conducted under Prolanis include several components. First medical consultations, where Prolanis participants schedule joint consultation sessions with the managing health facility. Second, group exercise sessions conducted regularly. Third, routine visits to check blood sugar and routine blood checks. In addition, there reminder activities using an SMS gateway system to motivate participants to attend regular visits to the healthcare facility. Another activity is home visits, in which healthcare providers visit the homes of Prolanis participants to provide information and education on personal and environmental health

Corresponding Author:
Zahratul Aini,
Department of Family Medicine, Faculty of Medicine,
Universitas Syiah Kuala, Banda Aceh, Indonesia
Email: dr.zahratulaini@usk.ac.id

for participants and their families.[5,7]

In a study conducted by Muhammad Nur sidiq with the title "The Effect of Prolanis exercise on Blood Pressure of Hypertensive Patients at Purwodiningratan Health Center, Surakarta City" with the results of research showing the effect of Prolanis exercise on blood pressure of hypertensive patients, where blood pressure decreased by 7 mmHg after doing ~~Prolanis~~ exercise 4 times. Program effectiveness is a way to measure the extent to which the program can run in order to achieve the goals that have been set before. Program effectiveness can be determined by comparing program objectives with program outputs. Muhammad Nur Sidiq's research showed that one of the Prolanis programs, namely Prolanis exercise, was effective enough to reduce blood pressure in hypertensive patients.[8] This program strives to achieve an optimal quality of life, emphasizing satisfaction, improved well-being, disease prevention, as well as cost-effective and efficient healthcare services for chronic disease patients.[5]

The success of Prolanis depends not only on program design but also on patient engagement and family involvement. Family support plays a crucial role in patient health by providing emotional encouragement, instrumental assistance, information, and supervision.[6,] Family support is support provided to patients in terms of emotional support, informational support, instrumental support and assessment support. Family support can be provided through the participation and active role of the family in providing support to patients in overcoming worries and emotional burdens and the family has an important role in the success of patients in their treatment.

Based on Ginting's research[9] on factors influencing the utilization of the Prolanis Program at Puskesmas Darussalam Medan shows that the variables of knowledge and family support have a significant relationship with the utilization of the Prolanis program. In Abdullah's research[10] mentioned that the factors causing the decline in the number of visits by Prolanis program participants at Puskesmas Minasa Upa Makassar City showed that there was a significant relationship between knowledge, family support, and the role of officers on the utilization of chronic disease management programs.[10] The role of family, compared to professional intervention, is important as a caregiver, often including the closest individual with the most attentive nature and supportive contribution in addressing the health issues of patients.[11] In the context of chronic diseases, caregiver is responsible for supervising medication intake, promoting regular check-ups, and ensuring adherence to medical recommendations.[12] This vigilant supervision not only expedites recovery but also curtails medication disruptions, promptly addresses medication side effects, and prevents resistance development.[13]

Previous investigations showed a relationship between family support and medication adherence in diabetic individual.[14] However, while this relationship has been well-documented in the context of diabetes, there remains a significant gap in understanding how family support influences medication adherence among patients enrolled in the Prolanis in Banda Aceh. Family support is very helpful for the success of patient treatment by always reminding patients to take medicine, gaining a deep understanding of the patient's illness, providing care starting from the problem of the disease suffered or psychological problems, and encouraging patients to remain active in treatment and caring for patients if they experience side effects from the drugs they take.[15]

There has been no research on the relationship between family support and medication adherence in Prolanis patients in Banda Aceh. Therefore, this investigation uniquely focuses on a specific and densely populated area, which is Batoh Health Center, with population of 26,119 residents, including 103 registered Prolanis patients.[16] Furthermore, the health center is led by a family physician (Sp. KKLP) and supported by qualified medical staff. By targeting this population, the study aims to determine the relationship between family support and medication adherence in Prolanis patients at the Batoh Health Center.

Methods

This study employed an observational analytic design with a cross-sectional approach to analyze the relationship between family support and medication adherence among patients with chronic diseases. The research was conducted at the Batoh Community Health Center, Banda Aceh, where the Prolanis program is actively implemented. Data collection was carried out from September to October 2022.

Participants were selected using non-probability consecutive sampling. This involves including subjects who meet the research criteria into the study until a certain time period

is reached, ensuring that the required sample size is achieved. Initially, the population under examination consisted of 103 individuals, from which 29 were excluded for not meeting the inclusion criteria The minimum required sample size of 51 was calculated using Cochran's formula for finite populations, assuming a 95% confidence level and a 5% margin of error.

The participants in this study were patients registered in the Prolanis program at the Batoh Community Health Center. They were individuals who actively participated in the program, meaning they regularly attended Prolanis activities and consultations related to their illness. Participation was also based on their willingness to be involved as respondents in the study. In addition, all selected patients were those who lived with their families.

Eligible participants were Prolanis patients who actively attended program activities, lived with their families, and agreed to participate. Patients with functional grade 5 (fully dependent on others for self-care), as well as those unable to communicate or complete the questionnaire due to cognitive or physical impairment, were excluded. Functional grade was determined based on the patient's level of independence, ranging from grade 1 (independent) to grade 5 (fully dependent).The functional grade classification is based on the patient's level of independence. Grade 1 represents patients who are able to perform physical activities as they did before the illness. Grade 2 includes patients who are able to perform self-care and light work both inside and outside the home. Grade 3 refers to patients who can perform self-care but are unable to do light work. Grade 4 is assigned to patients who are mostly inactive and require assistance with daily activities. Finally, Grade 5 includes patients who are fully dependent on others for self-care.

Data collected included demographic characteristics such as age, sex, education level, duration of Prolanis participation, and disease diagnosis. Family support was assessed using a validated questionnaire that measures two domains: instrumental support (12 items) and emotional support (13 items)._Responses to the questionnaire are determined using a Likert scale, with respondent answers rated from very positive to very negative on a scale of 1 to 3 (never, rarely, often). The highest possible score is 75, and the lowest is 25. To determine the cut-off point for family support, a normality test using the Kolmogorov-Smirnov method was conducted because the sample size was greater than 50. The results indicated a non-normal distribution, so the cut-off point was set using the median value. The median value was 70, thus scores below 70 are considered poor, and scores of 70 or above are considered good.

Medication adherence was assessed using the Indonesian version of the 8-item Morisky Medication Adherence Scale (MMAS-8),[18,19,20] a widely validated tool developed by Dr. Donald E. Morisky. The MMAS-8 has been used in various countries, including Iran, Malaysia, Spain, and China, and has been translated into Indonesian.

Table 1 Characteristics of Prolanis Participants at Batoh Health Center (n=74)

Characteristic	Frequency (n)	Percentage (%)
Age (years)		
<45	6	8.1
45–54	15	20.3
55–65	39	52.7
66–74	12	16.2
75–90	2	2.7
Gender		
Male	9	12.2
Female	65	87.8
Highest Education Level		
No Schooling	1	1.3
Elementary School Graduate	8	10.8
Junior High School Graduate	19	25.7
High School Graduate	35	47.3
College Graduate	11	14.9
Duration of Prolanis Participation		
<1 year	20	27
1–3 years	21	28.4
>3 years	33	44.6
Disease Diagnosis		
Diabetes mellitus	34	35.1
Hypertension	42	43.3
Diabetes mellitus and hypertension	12	12.4
Dyslipidemia	9	9.2

MMAS-8 consists of 7 items answered with a yes or no and 1 item with a 5-point Likert scale.

Reliability and validity test results show that the Indonesian version of the 8-item MMAS is valid and reliable and can be used as an instrument to measure the level of patient compliance.[20,21] The results of the psychometric properties reliability test and validity test show that the Indonesian version of the MMAS-8 has good reliability and validity with the results of internal consistency reliability assessed using Cronbach's alpha coefficient is 0.824 and the

Table 2 Distribution of Family Support Questionnaire Responses (n=74)

Question	Never		Seldom		Often	
	n	(%)	n	(%)	n	(%)
Instrumental Support						
Reminds me to take medication when I forget	1	(1.4)	0	(0)	73	(98.6)
Procures medication for me when I cannot do it myself	1	(1.4)	3	(4)	70	(94.6)
Provides medication in a container when I cannot afford it	1	(1.4)	2	(2.7)	71	(95.9)
Accompanying me when taking Medication	2	(2.7)	17	(23)	55	(74.3)
Helps read the dosage when I cannot do it myself	1	(1.4)	0	(0)	73	(98.6)
Describing how to take medication when I cannot do it myself	1	(1.4)	1	(1.4)	72	(97.2)
Informing me about the benefits and risks of non-adherence to medication	1	(1.4)	3	(4)	70	(94.6)
Assisting in facilitating medication when I cannot afford it	1	(1.4)	2	(2.7)	71	(95.9)
Providing transportation for medical appointments if I cannot come on my own	1	(1.4)	1	(1.4)	72	(97.2)
Taking me for check-ups	1	(1.4)	4	(5.4)	69	(93.2)
Providing transportation even for short distances if I cannot manage	2	(2.7)	2	(2.7)	70	(94.6)
Motivating me to recover and adhere to medication	1	(1.4)	2	(2.7)	71	(95.9)
Emotional Support						
Covering expenses when I cannot afford it	1	(1.4)	0	(0)	73	(98.6)
Being there when I feel lonely	3	(4.1)	4	(5.4)	67	(90.5)
Being there when I feel alone	0	(0)	8	(10.8)	66	(89.2)
Being there when needed	0	(0)	6	(8.1)	68	(91.9)
Showing love	0	(0)	3	(4.1)	71	(95.9)
Giving attention	1	(1.4)	3	(4)	70	(94.6)
Cares for me	0	(0)	1	(1.4)	73	(98.6)
Willing to listen to my complaints	1	(1.4)	10	(13.5)	63	(85.1)
Meets and talks when I need them	0	(0)	2	(2.7)	72	(97.3)
Offering advice when I face problems	0	(0)	11	(14.9)	63	(85.1)
Provides encouragement when I am desperate	3	(4.1)	2	(2.7)	69	(93.2)
Reminds me to surrender and be grateful to God	1	(1.4)	3	(4)	70	(94.6)
Meets my food and drink needs at home	0	0 (0)	1	(1.4)	73	(98.6)

test-retest reliability using Spearman's rank correlation is 0.881**.**

Descriptive statistics (mean, standard deviation, frequency, and percentage) were used to describe respondent characteristics and study variables. The relationship between family support and medication adherence was analyzed using the Chi-square test and logistic regression, with significance set at $p<0.05$. Results are presented in tables for clarity.

Ethical approval for the study was obtained from the Health Research Ethics Committee, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh (No. 030/EA/FK/2022). Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained.

Results

A total of 74 Prolanis participants at Batoh Health Center were included in this study. The majority were aged 55–65 years (52.7%), female (87.8%), and high school graduates (47.3%). Most had participated in Prolanis for more than three years (44.6%). Hypertension (43.3%) was the most common diagnosis, followed by diabetes mellitus (35.1%), combined hypertension and diabetes mellitus (12.4%), and dyslipidemia (9.2%) (Table 1).

Table 2 shows-the study revealed that almost all respondents received support from their families, both instrumentally and emotionally. "Reminding me to take medication when I forget" (98.6%) and "Helping read the dosage when I cannot do it myself" (98.6%) had the highest percentages among instrumental support, indicating strong family involvement in ensuring medication adherence. Meanwhile, "Accompanying me when taking medication" had the lowest percentage (74.3%), suggesting that while family support is present, physical accompaniment during medication intake might not always be prioritized.

In terms of emotional support, "Covering expenses when I cannot afford it" (98.6%) and "Being there when I feel alone" (91.6%) were among the most frequently received supports, highlighting the family's role in financial and emotional well-being. On the other hand, "Offering advice when I face problems" (83.1%) had a relatively lower percentage, implying that while emotional presence is strong, advisory support may vary depending on individual family dynamics.

In Table 3, The majority of participants demonstrated good medication adherence, with most reporting that they had taken their medication the previous day and had not skipped doses in the past two weeks. However, nearly half admitted to occasionally forgetting to take their medication. A smaller percentage of respondents had stopped or reduced medication without consulting a doctor, particularly in the absence of symptoms. Additionally, a few participants found it difficult to remember all their medications or had trouble following their treatment plan.

Table 3 Distribution of Medication Adherence Questionnaire Responses

Question	Yes		No	
	n	(%)	n	(%)
Do you sometimes forget to take your medication?	35	(47.5)	39	(52.7)
In the past two weeks, have there been days when you did not take your medication?	18	(24.4)	56	(75.6)
Have you ever reduced or stopped taking medication without informing the doctor because you felt worse when taking it?	5	(6.8)	69	(93.2)
When traveling or leaving home, do you sometimes forget to bring your medications?	22	(29.8)	52	(70.2)
Did you take your medication yesterday?	71	(96)	2	(4)
Have you ever stopped taking medication when there were no symptoms?	24	(32.5)	50	(67.5)
Have you ever had trouble with your treatment plan?	7	(9.5)	67	(90.5)
Do you often find it difficult to remember to take all your medications?	5	(6.8)	69	(93.5)

Table 4 Distribution of Family Support (n=74)

Family Support	Frequency	Percentage (%)
Poor	8	10.8
Good	66	89.2

Table 5 Distribution of Medication Adherence Frequency

Medication Adherence	Frequency (n=74)	Percentage (%)
Low	33	44.5
High	41	55.5

Table 6 Relationship between Family Support and Medication Adherence (n=74)

Family Support	Medication Adherence				Total		p-value	95% CI
	Low		High					
	n	%	n	%	n	%		
Poor	7	87.5	1	12.5	8	100	0.027	1.25–92.7
Good	26	39.4	40	60.6	66	100		

Table 4 presents the distribution of family support among the participants, with nearly 90% of respondents reporting adequate assistance from their families. Only a small proportion of participants experienced poor family support, highlighting the overall strong role of families in patient care and medication adherence.

Table 5 presents the distribution of medication adherence among the participants. More than half of participants (55.5%) demonstrated high medication adherence, whereas 44.5% showed low adherence. These findings suggest that although the majority of patients adhere to their prescribed medication regimens, a significant subset may benefit from targeted interventions to enhance adherence.

According to Table 6, the analysis indicates a significant association between family support and medication adherence. Patients who received good family support were more likely to exhibit high adherence compared to those with poor support. The statistical test yielded a p-value of 0.027, suggesting that this relationship is unlikely to be due to chance. The confidence interval (CI: 1.25–92.7) further reinforces this finding, highlighting the substantial impact of family support on adherence behavior.

Discussion

In this study, most Prolanis patients received strong family support, which played a crucial role in promoting well-being. Good family support was associated with improved health maintenance, reduced illness, and a better quality of life for elderly patients.[23,24] Families provided instrumental support, such as reminding patients to take medication, reading dosages when necessary, and accompanying them during medication administration. In contrast, some families also provide emotional support such as covering expenses, providing care, and meeting food and drink needs, and others listened to complaints and offered advice on problems. In the context of elderly, understanding the experiences faced was crucial, and family members often served as empathetic listeners, fulfilling the needs. Family support significantly contributes to building self-confidence and providing motivation.[23] Therefore, accompanying elderly patients, listening to their concerns, and offering advice, are essential components helping to foster a supportive environment.[22,19]

The attitude of family members, specifically spouses, in promoting, supporting, and monitoring patients determined the decision to either discontinue or continue medication. Persistent family encouragement and attention could boost the confidence of patients, influencing medication adherence.[26] This was consistent with the findings of this study, in which 40 participants with good family support demonstrated high adherence.

Overall, the majority of Prolanis patients had high medication adherence, consistent with findings by Aulina and Siyam[26] who reported similar results at Bandarharjo Health Center. Medication adherence significantly impacted medication success, with non-adherence posing risks such as blood pressure control disruption, medication failure, and potentially fatal side

effects. Additionally, patient adherence included compliance with medication recommendations related to timing, dosage, and frequency.[25] In this study, the most common reason for low adherence was forgetfulness, particularly when patients traveled without their medications or discontinued use when symptoms were absent.. Medication adherence is crucial for achieving treatment goals and preventing complications, where the right medication tends to promote recovery. This is particularly applicable to patients on long-term medication, which may last for a lifetime.

The result in this study shows a relationship between family support and medication adherence in Prolanis patients. Patients with poor family support had a significantly greater chance of experiencing low adherence compared to those with strong family support. However, a small number of individuals with limited family support still demonstrated high adherence, indicating that other factors may also influence adherence levels. The results of this study are in line with research conducted by Widyaningrum et al (2019) which found that out of 137 respondents, many had good family support, with high medication adherence observed in a majority of them[28] and research by Mulidan et al.[29] also stated that one of the factors influencing patient compliance with taking medication is family support.

The role of family in patient care is emphasized by Friedman, who described the family as the primary support system for individuals with health problems. This is in line with the perspective of Friedman emphasizing that the family serves as the primary support system for individuals facing health issues. Compared to medical professionals, the most suitable caregiver is family members due to being the closest to patients and mostly available when needed.[10] A caregiver assists in overseeing medication adherence, ensuring quick recovery, timely medication intake, and prevention of medication disruptions and resistance.[12,13] The results were consistent with Widyaningrum et al.[28] where good family support among participants led to high medication adherence, fostering a sense of love, encouragement, value, and support for patients, particularly elderly individuals suffering from chronic diseases. Similarly, Purnawinadi[17] also reported that family support, love, care, and respect for other members help reduce the burden of chronic illness.

The collected data showed that although family members supported patients in participating in Prolanis, there was limited attention to medication adherence at home) . Similarly, the role of the family in medication adherence for Tuberculosis patients, as in Arifal et al,[30] indicated that overcoming non-adherence in tuberculosis patients requires the family's role as a supervisor of medication intake. Only a few actively engaged in overseeing medication intake, primarily assisting with medication acquisition once a month or during supply exhaustion. Additionally, family members mostly accompanied patients to receive healthcare services without staying during medical appointments and consultations with the doctor, leading to missed educational opportunities provided by professionals. This lack of exposure to necessary information negatively impacted adherence behaviors.

Contrasting evidence was reported by Hanum et al.[15] who found no significant association between family support and medication adherence (p=0.785). This discrepancy might be attributed to several factors, including variations in research locations, sample characteristics, and and the methodological approach used. Differences in population demographics, healthcare settings, and cultural contexts could also contribute to contrasting findings. These factors highlight the complexity of researching the relationship between family support and medication adherence, suggesting the need for further exploration in diverse settings.

This study has several limitations. First, the cross-sectional design limits causal interpretations of the relationship between family support and medication adherence. Additionally, self-reported adherence may be subject to recall bias. Furthermore, researchers did not intervene directly with family members of PROLANIS participants, limiting the ability to fully explore the causes of low adherence despite good family support. Future research should consider longitudinal studies and objective measures of adherence.

The findings demonstrate a significant relationship between family support and medication adherence among Prolanis patients. Both instrumental supportsuch as reminding patients to take medication, reading dosages, and accompanying them during medication administration and emotional support such as providing care, listening to complaints, and offering advice play a crucial role in improving patients' adherence to treatment.

Patients with good family support were more

likely to have high medication adherence, while those with poor support had a greater risk of non-adherence. Additionally, families act as supervisors in the treatment process, ensuring that patients follow their therapy correctly to prevent complications.

However, while families support patients' participation in the Prolanis program, attention to medication adherence at home remains limited. Many family members assist in obtaining medication but are less involved in daily monitoring. Therefore, further interventions that engage families in medication adherence education are necessary to enhance the effectiveness of long-term therapy.

Healthcare providers should actively involve families in supporting medication adherence by educating them on the importance of reminders, supervision, and emotional encouragement. Family members should be integrated into medical consultations and chronic disease programs like Prolanis to enhance their role in patient care. Strengthening communication between healthcare providers and families through regular follow-ups and counseling can further improve adherence. Additionally, future research should explore family-based interventions and their long-term effects on medication adherence to develop more effective support strategies.

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